

July 20, 2001 File No. 52-5146.01

Mr. Warren Rosebraugh, PE Flood Control District of Maricopa County. 2801 West Durango Phoenix, Arizona 85009

SUBJECT:

Tall Pot Mitigation Site Testing

Assignment No. 1 Elliot TP Investigation

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Dear Mr. Rosebraugh:

Kleinfelder, Inc. (Kleinfelder) is pleased to present this report summarizing our subsurface study performed for the Tall Pot Mitigation Site. The project site is located near the southeast corner of the East Maricopa Floodway and Chandler Heights Road in Chandler, Arizona. The results of our field study, laboratory study and recommendations are presented in the attached report.

In summary, the soils at the site are suitable for most uses from a geotechnical and chemistry perspective with respect to testing performed. The recommendations presented herein are subject to the limitations presented at the end of the report. We appreciate the opportunity to be of service on this project. If you have questions, comments or require additional information, please do not hesitate to contact our office.

Respectfully submitted,

KLEINFELDER, INC.

Charles E. Reynolds, GIT

aces E. Regalds

Project Manager

34500 JAMES D. WILSON 7-zo-out

James D. Wilson, PE Senior Project Engineer



## General

In this report we present the results of our subsurface study for the Tall Pot Mitigation Site located in Chandler, Arizona. The location of the site relative to existing streets and the surrounding area is shown on Figure 1. The purpose of the study was to explore and evaluate the soil conditions at the Tall Pot Mitigation Site.

Our study included a site reconnaissance, subsurface exploration, representative soil sampling, field and laboratory testing, engineering analyses, and preparation of this report. This report presents the result of a backhoe exploration program, laboratory analysis for soil properties, agronometric properties and analysis for the presence of organochlorine pesticides. The results contained in this report are subject to the limitations presented herein. Attention is directed to the "Limitations" section of this report.

## **Proposed Project**

We understand the Flood Control District of Maricopa County (FCDMC) owns excess land and soil stockpiles near the East Maricopa Floodway and Chandler Heights Road in Chandler Arizona. At some time in the future FCDMC may offer the site soils as a borrow source.

Should final design details vary from those stated above, this office should be notified for review and possible revisions to our recommendations.

## Site Description

The site is located southeast of the East Maricopa Floodway and Chandler Heights Road in Chandler Arizona. The East Maricopa Floodway and the Roosevelt Canal bound the site to the west; Chandler Heights bounds the site to the north, Riggs Road is to the south and new rural residential development is located to the east. The approximate configuration of the site is shown on Figure 1, Location Map.



## Field Exploration

The field study was performed on June 19, 2001, and consisted of excavating 8 test pits within site at locations established by FCDMC. The pits were excavated, using a Caterpillar 426 rubber-tired backhoe, to depths ranging from 3 to 10 feet below the existing ground surface. Plote Excavating Inc. was subcontracted to excavate the pits. A Kleinfelder staff engineer observed the pit excavation, classified the encountered soils, prepared boring logs, and collected soil samples for laboratory examination and testing.

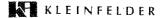
Prior to the start of excavating, the Arizona Bluestake Center and a private locator service were contacted to locate any potential existing utilities at the pit locations. Upon completion of the pit excavation, the pits were backfilled with the excavated soils.

Bulk samples along with samples for environmental analysis were taken at the direction of the field engineer during pit excavation. After soils were removed from each pit, samples were removed, appropriately contained, and submitted to the laboratory for the designated testing.

Soil classifications made in the field from excavated and samples were re-evaluated in the laboratory after further examination and testing. The soils were classified in accordance with the attached Unified Soil Classification System.

Sample classifications, and other related information were recorded on the test pit logs. The logs for TP-1 through TP-8 are attached.

The locations of the pits were estimated by our engineer based on rough measurements from the limits of existing landmarks; therefore, the locations of the borings should be considered approximate.



## Laboratory testing

Representative soil samples from the borings were tested in the laboratory for classification purposes and to evaluate their engineering properties. The laboratory tests included:

- Six sieve analyses
- Six Atterberg limits tests
- Eight agronometric tests
- Eight nitrogen content tests
- Eight phosphorous content tests
- Eight organochlorine pesticide tests (EPA Method 8081)

## Subsurface Soil Conditions

In general, the soils generally consist of non-plastic to low plasticity, fine grained soils consisting of Sandy Clays (CL), Silty Sands (SM) and Clayey Sands (SC) along with some Sandy Silts (ML). Recommendations for their use are presented below.

Agonometric testing show that most parameters were within acceptable ranges for desert soils. Nitrogen concentrations were elevated is some samples.

Tests for the presence of pesticides showed trace amounts (0.0017 to 0.098 mg/kg) of DDT, DDE and Toxaphene. All recorded detections were below the Arizona Department of Environmental Quality (ADEQ) residential and commercial soil remediation levels.

## Conclusions & Recommendations

The results of our study show that soils at the Tall Pot site, from a physical standpoint, will be suitable for most uses such as mass grading or topsoil. The gradations are such that the material will <u>not meet</u> requirements for most structural or trench backfill specifications. From the standpoint of soil chemistry, parameters are within acceptable ranges and will be acceptable for most uses, including topsoil. Pesticide analysis showed trace amounts of DDT, DDE and Toxaphene. All detections of DDT and DDE were below the ADEQ residential and commercial soil remediation levels of 13.0 mg/kg and 56.0 mg/kg, respectively. Detections of Toxaphene



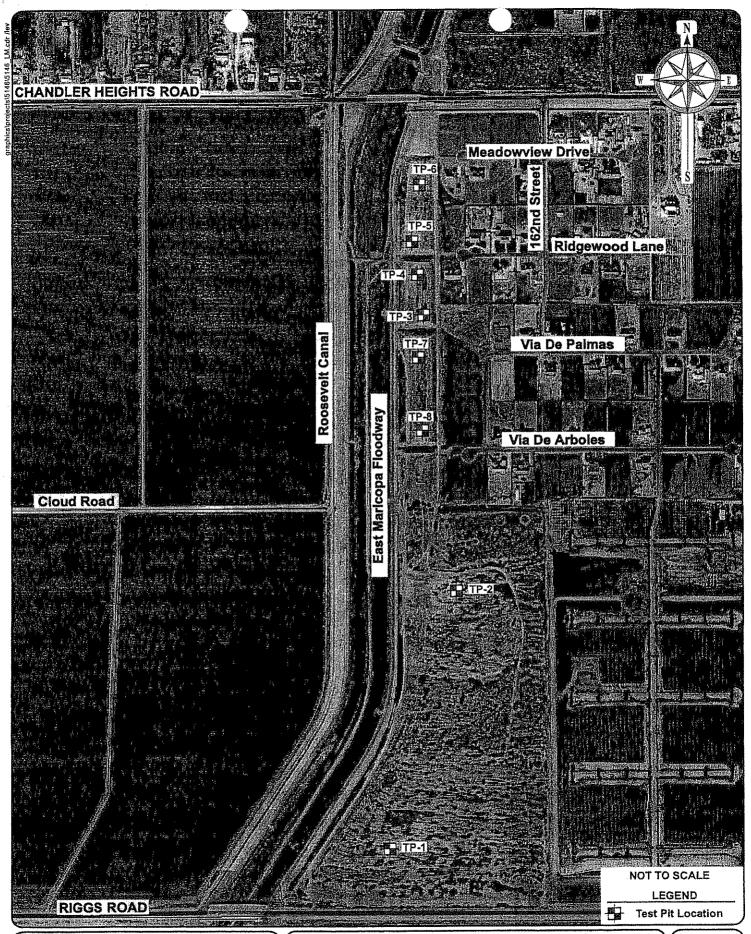
were below residential and commercial soil remediation levels of 4.0 mg/kg and 17 mg/kg, respectively.

## Limitations

The recommendations contained in this report are based on our field explorations, laboratory tests, and our understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the eight test pits excavated during the field study. It is anticipated that some variations in the soil conditions will exist between the points explored. The nature and extent of variations may not be evident until excavation occurs. If any conditions are encountered at this site, which are different from those described in this report, our firm should be immediately notified so that we may make any necessary revisions to the recommendations contained in this report. In addition, if the scope of the understood use changes from that described in this report, our firm should also be notified. This report was prepared in accordance with the generally accepted standard of practice in Arizona at the time the report was written. No warranty, expressed or implied, is made. It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

## PLATES



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Tall Pot Mitigation Site Testing Chandler, Arizona FIGURE

1

LOCATION MAP

APPENDIX A

Boring Logs

## UNIFIED SOIL CLASSIFICATION SYSTEM

**USCS** 

**TYPICAL** 

	MAJOR DIVISION	NS	SYMBOL	DESCRIPTIONS
		CLEAN GRAVELS WITH LESS THAN	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
	GRAVELS (More than half of	5% PASSING NO. 200 SIEVE	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
·	coarse fraction is larger than the #4 sieve)	GRAVELS WITH	GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
COARSE GRAINED SOILS		OVER 12% PASSING NO. 200 SIEVE	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
(More than half of material is larger than		CLEAN SANDS WITH LESS THAN	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
the #200 sieve)	SANDS (More than half of	5% PASSING NO. 200 SIEVE	SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
	coarse fraction is smaller than the #4 sieve)	SANDS WITH OVER	SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
·		12% PASSING NO. 200 SIEVE	SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
			ML	INORGANIC SILTS & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
		ND CLAYS it less than 50)	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
FINE GRAINED SOILS			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
(More than half of material is smaller than			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
the #200 sieve)		ND CLAYS greater than 50)	СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			ОН	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

Note: Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing No. 200 sieve require dual USCS symbols. (See KEY A-3 if provided)

A

GEO-KEY\_A1\_SOIL\_514601.GPJ cnewman@kleinfelder.com 07/23/2001

KLEINFELDER

Drafted By: Date:

July, 2001

m Project Number:

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## UNIFIED SOIL CLASSIFICATION SYSTEM

Tall Pot Mitigation Maricopa County Flood District Excess Land Chandler, Arizona KEY

A-1

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TEST-PII	35 -					Anna es evicios			- Control of the Cont		· · · · · · · · · · · · · · · · · · ·	······································		<u></u>				
GEO_ADOT_TEST-PIT_E 514601.GPJ cnewman@kleinfeider.com 07/19/2001				C L E	= I N	F	= 1	DF	R	-	LOC	OF	TE	ST P	T TP-6			TEST PIT
핊				· - 1		•		Access Comm			ı alı Mari	rot IV icopa	Cou	ation unty F	Flood Dist	rict		TP-6

Copyright Kleinfelder, Inc. 2001

Drafted By:

July, 2001 Date:

jm

52-5146-01

Project Number:

Soil Piles Chandler, Arizona

Page 1 of 1

Gro	undv	vater (		No i				er Enco	Elevation (ft				Date Completed:	6/19/2001 6/19/2001	Let
		on Co on Me	thod:		e Bac CKHO				Equipment: Bucket Size	_	AT-436 1.5	3 4X4	Logged By: Total Depth (ft):	Ryan McDona	IQ .
	T	FIEL	.D		·····	LA	BORA	TORY	······································		_			RIPTION	
	Interval	Туре	(lbs/ft³)	(%)	ii.	/ Index	(%)	%) эле		al Log	USCS Classification			10.0 feet	
	Sample Interval	Sample Type	Dry Density (lbs/ft³)	Moisture Content (%)	Liquid Limit	Plasticity Index	Passing #4 Sieve	Passing #200 Sieve (%)	Other Tests	Graphical Log					
5 —	- 🛞	BULK	***************************************		23	5	91	43	Agronomy Nitrogen Phosphorous Pesticides		SC-SM	Clayey to S fine grave	Silty Sand - Predomin I, red-brown to brown	antly fine to medi, dry, low plasticit	um sand, trac
10—	- 🏁	- :	7										minated at 10.0 feet topped at 10.0 feet		
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			 (		<b></b>	= 1	D F	R	LOG OF			T TP-7			TEST P
Drafte	ed B						mber:		Tall Pot N Maricopa Soil Piles Chandler	Cot	unty F	lood Dist	rict		TP-7

Page 1 of 1

Copyright Kleinfelder, Inc. 2001

July, 2001 Date:

	g and I Iwater (	Easting:		Free (	Groun	rchara+	er Enc	Elevation (1	ft):			D. Started: Date Completed:	6/19/2001 6/19/2001	
	ition Co			~~~~~~	khoe		C: 110	Equipment	: C	AT-430	3 4x4	Logged By:	Ryan McDonal	đ
Excava	ition Me	ethod:		СКНС				Bucket Siz	e (ft <u>):</u>	1.5			10.0	
										<u></u>		Total Depth (ft):	10.0	·····
	FIEL	_D	~		LA	BORA	ATORY			Ę		DESC	RIPTION	
<u></u>					*		9			USCS Classification		0.0 to	10.0 feet	
reto	lype	lbs//tt	(%)	aji H	Inde	(%)	ye (3		II Log	lassil				
Sample Interval	Sample Type	Dry Density (lbs/ft <sup>2</sup> )	Moisture Content (%)	Liquid Limit	Plasticity Index	sing	sing 0 Sie	P S	Graphical Log	၁ ဗင				
Sar			Moig	를	Plas	Pas #4	Passing #200 Sieve (%)	Other Tests	Gra					
-8	BULK							Pesticides		CL	Sandy Clay	<ul> <li>Predominantly fine to brown, dry, low plant</li> </ul>	sand, trace fine g asticity.	ravel,
-₩	8	- -		ΝP	l ND	99	39	Ammana		SM				#*
- 🎇	BULK	, ]		NF	NP	99	1 38	Agronomy Nitrogen		SIVI	gravel, bro	<ul> <li>Predominantly fine town, slightly moist, no</li> </ul>	to medium sand, ti on-plastic.	race fine
- 🎇	8				1 4		1	Phosphorous Pesticides						
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h.		< L E	EIN	F	EL	D E	E R	LOG OF Tall Pot			17 TP-8			
							-	Maricopa	a Co	unty F	Flood Dist	rict		TP-
afted	Bv:	i	m	Proie	ct Nu	mber	· · ·	Soil Pile	S					1 1

Date: Copyright Kleinfelder, Inc. 2001

Project Number: July, 2001 52-5146-01

Soil Piles Chandler, Arizona

Page 1 of 1

## appendes b

Laboratory Reults



TALL POTS

REVIEWED BY: LOCATION:

M. CONNOLLY

52-5146-01 PROJECT NO:

WORK ORDER NO: 01192

06/19/01 DATE SAMPLED:

## GROUP SYMBOL, USCS (ASTM D-2487) MECHANICAL SIEVE ANALYSIS

## SIEVE SIZES

		Lab#	
Siltor	Clay	#200	The second secon
	J	#100	
	Fine	#20	
		#40	
SAND	n	#30	
,	Medium	#16	
		#10	
	Coarse	8#	
	ပိ	#4	
		1/4"	
	Fine	3/8"	
	Ē	3/4" 1/2"	_
GRAVEL		3/4"	
GR/		1,,	
	Coarse	1 1/2"	
	Š	2".	
		3"	
COBBLES		6" 4" 3	
COBBLES		9	
		PL PI	
		겁	
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		uscs	
		Location & Depth USCS LL PL PI 6" 4" 3"	

# PERCENT PASSING BY WEIGHT

	_	<u> </u>					 	
5	ဖ	6	9	12	15			
53	51	52	45	43	39			
64	67	70	62	58	90			
93	83	85	80	7.1	84			
96	89	89	98	78	89			
97	92	92	88	84	92			
98	96	95	94	91	95			
66	86	97	96	94	97			
99	86	26	96	95	26			
100	66	66	98	26	66			
100	100	66	99	98	66			Ī
100	9	100	100	66	100			
100	\$	100	100	66	100			
100	100	100	100	100	100			
100	186	100	100	100	100			
100	\$	100	100	50	100			
100	8	100	92	98	9			
100	8	100	100	100	5			
100	8	100	100	18	8			
100	100	100	100	100	100			
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≩	24	⋛	≩	23	≩			
SM	CL-ML	MI	SM	SC-SM	SM			
TP3 @ 2' - 8'	TP-4 @ 0' - 4'	TP-5 @ 4' - 9'	TP6 @ 0' - 4'	TP-7 @ 0' - 3'	TP-8 @ 2' - 8'	**************************************	 ANALYSIA	



TALL POTS

TP1

LOCATION:

MATERIAL:

SOIL SAMPLE

SAMPLE SOURCE:

DEPTH:

0' - 3'

JOB NO:

WORK ORDER NO:

01005

LAB NO:

1

TESTED BY:

FAX: (480) 763-1212

IAS LABS.

52-5146-01

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS		
рН	8.8	N/A		
SOLUBLE SALTS	510.0	ppm		
CALCIUM CARBONATES	2.8	%		
EXCHANGEABLE SODIUM	2.2	%		
EXCHANGEABLE SODIUM	99	ppm		
NITRATE NITROGEN	9.3	ppm		
PHOSPHATE PHOSPHORUS	4.1	. ppm		

PHONE: (480) 763-1200



TALL POTS

LOCATION: MATERIAL:

SAMPLE SOURCE:

SOIL SAMPLE

TP2

DEPTH:

0.5' - 3'

JOB NO:

52-5146-01

WORK ORDER NO:

LAB NO:

01005 3

TESTED BY:

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS		
Нα	8.3	N/A		
SOLUBLE SALTS	1660	ppm		
CALCIUM CARBONATES	4.1	* %		
EXCHANGEABLE SODIUM	3.3	%		
EXCHANGEABLE SODIUM	210	ppm		
NITRATE NITROGEN	37.0	ppm		
PHOSPHATE PHOSPHORUS	5.9	ppm		



TALL POTS

LOCATION:

MATERIAL: SAMPLE SOURCE:

SM

TP3

DEPTH:

. 2' - 8'

JOB NO:

OB NO:

:

WORK ORDER NO: LAB NO:

01005 5

TESTED BY:

IAS LABS.

52-5146-01

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS		
рН	8.6	N/A		
SOLUBLE SALTS	320.0	ppm		
CALCIUM CARBONATES	1.3	%		
EXCHANGEABLE SODIUM	2.0	%		
EXCHANGEABLE SODIUM	45	ppm		
NITRATE NITROGEN	9.0	ppm		
PHOSPHATE PHOSPHORUS	4.6	ppm		



TALL POTS

LOCATION: MATERIAL:

CL-ML TP4

SAMPLE SOURCE:

DEPTH:

0' - 4'

JOB NO:

52-5146-01

WORK ORDER NO:

LAB NO:

6

01005

**TESTED BY:** 

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS
рН	8.3	N/A
SOLUBLE SALTS	1150	ppm
CALCIUM CARBONATES	3.5	%
EXCHANGEABLE SODIUM	1.9	%
EXCHANGEABLE SODIUM	130	ppm
NITRATE NITROGEN	34.0	ppm
PHOSPHATE PHOSPHORUS	8.3	ppm

PHONE: (480) 763-1200

FAX: (480) 763-1212



TALL POTS

LOCATION:

MATERIAL:

ML

SAMPLE SOURCE:

TP5

DEPTH:

4' - 9'

JOB NO:

WORK ORDER NO:

LAB NO:

TESTED BY:

52-5146-01

01005

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS		
. pH	8.3	N/A		
SOLUBLE SALTS	830.0	ррт		
CALCIUM CARBONATES	2.5	%		
EXCHANGEABLE SODIUM	1.8	%		
EXCHANGEABLE SODIUM	100	ррт		
NITRATE NITROGEN	46.0	ppm		
PHOSPHATE PHOSPHORUS	7.2	ppm		

PHONE: (480) 763-1200 FAX: (480) 763-1212

1335 WEST AUTO DRIVE, TEMPE, ARIZONA ISSUED: 07/18/01

NA P



TALL POTS

LOCATION:

MATERIAL:

SAMPLE SOURCE:

SM

TP6

DEPTH:

0' - 4'

JOB NO:

52-5146-01

WORK ORDER NO:

01005

LAB NO:

10

TESTED BY:

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS
рН	8.3	N/A
SOLUBLE SALTS	1400	ppm
CALCIUM CARBONATES	5.8	%
EXCHANGEABLE SODIUM	1.7	%
EXCHANGEABLE SODIUM	110	ppm
NITRATE NITROGEN	510.0	ppm
PHOSPHATE PHOSPHORUS	· 67	ppm



TALL POTS

LOCATION: MATERIAL:

SAMPLE SOURCE:

SC-SM

TP7

DEPTH:

0' - 3'

JOB NO:

WORK ORDER NO:

01005

LAB NO: TESTED BY: 12

52-5146-01

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS
рН	8.3	N/A
SOLUBLE SALTS	1280.0	ppm
CALCIUM CARBONATES	4.1	%
EXCHANGEABLE SODIUM	1.3	%
EXCHANGEABLE SODIUM	91	ppm
NITRATE NITROGEN	28.0	ppm
PHOSPHATE PHOSPHORUS	5.7	ppm

PHONE: (480) 763-1200

FAX: (480) 763-1212



TALL POTS

LOCATION: MATERIAL:

SM

SAMPLE SOURCE:

TP8

DEPTH:

2' - 8'

JOB NO:

52-5146-01 01005

WORK ORDER NO: LAB NO:

15

TESTED BY:

IAS LABS.

## **ANALYSES RESULTS**

ANALYSIS	RESULTS	UNITS
рН	8.3	N/A
SOLUBLE SALTS	1020	ppm
CALCIUM CARBONATES	2.8	%
EXCHANGEABLE SODIUM	2.3	%
EXCHANGEABLE SODIUM	100	ррт
NITRATE NITROGEN	56.0	ppm
PHOSPHATE PHOSPHORUS	6.8	ppm

PHONE: (480) 763-1200

FAX: (480) 763-1212

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-01A

Client Sample TP-1@0-3'

Tag Number: 01A

Collection 6/19/2001 7:40:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	mg/Kg	1	7/13/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/13/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/13/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/13/200 <b>1</b>
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/13/2001
4,4'-DDE	0.0054	0,00083	mg/Kg	1	7/13/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Endrin	< 0.00083	0.00083	mg/Kg	. 1	7/13/2001
4,4´-DDD	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/13/2001
4,4´-DDT	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/13/2001
Methoxychior	< 0.0017	0.0017	mg/Kg	1	7/13/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/13/2001
Toxaphene	< 0.017	0.017	mg/Kg	1	7/13/2001
Surr: Decachiorobiphenyl	95.2	0-0	%REC	1 .	7/13/2001
Surr: Tetrachloro-m-xylene	84.8	0-0	%REC	1	7/13/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limit R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-02A

Client Sample TP-2@0-3'

Tag Number: 02A

Collection 6/19/2001 8:30:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual U	nits	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A	•			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		ıg/Kg	1	7/14/2001
Heptachior epoxide	< 0.00083	0.00083	· m	ıg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	m	ig/Kg	1	7/14/2001
4,4´-DDE	0.045	0.00083	m	ig/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083	m	g/Kg	1	7/14/2001
Endrín	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		ıg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
4,4´-DDT	0.0039	0.00083	m	ıg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	m	ıg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	m	ig/Kg	1	7/14/2001
Methoxychior	< 0.0017	0.0017	m	ıg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	m	ıg/Kg	,1	7/14/2001
Toxaphene	0.062	0.017	R3 m	ıg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	85.9	0-0	%	REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	83.7	0-0	%	REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits J - Analyte detected below quantitation limit R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-03A

Client Sample TP-3@0-8'

Tag Number: 03A

Collection 6/19/2001 9:40:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDE	0.0027	0.00083	mg/Kg	·1	7/14/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4´-DDD	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4 -DDT	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Methoxychior	< 0.0017	0.0017	mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/14/2001
Toxaphene	< 0.017	0.017	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	92.1	0-0	%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	83.2	0-0	%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits J - Analyte detected below quantitation limit

R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

E - Value above quantitation range
\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-04A

Client Sample TP-4@0-8'

Tag Number: 04A

Collection 6/19/2001 10:25:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDE	0.019	0.00083	mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4′-DDD	< 0.00083	0,00083	mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDT	0.0011	0.00083	mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017	mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/14/2001
Toxaphene	0.033	0.017	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	83.6	0-0	%REC	-1	7/14/2001
Surr: Tetrachloro-m-xylene	80.4	0-0	%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits J - Analyte detected below quantitation limit

R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

E - Value above quantitation range

\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-05A

Client Sample TP-5@0-8'

Tag Number: 05A

Collection 6/19/2001 10:55:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: DCS
alpha-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083		mg/Kg	· 1	7/14/2001
beta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083		mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDE	0.053	0.00083		mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083		mg/Kg	1	7/14/2001
4,4'-DDT	0.0032	0.00083		mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083		mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017		mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083		mg/Kg	1	7/14/2001
Toxaphene	0.098	0.017	R3	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	83.3	0-0		%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	79.7	0-0		%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits J - Analyte detected below quantitation limit

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range
\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-06A

Client Sample TP-6@0-8'

Tag Number: 06A

Collection 6/19/2001 11:35:00 AM

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4´-DDE	0.065	0.00083	mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/14/200 <b>1</b>
Endrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDD	0.00089	0.00083	mg/Kg	1	7/14 <b>/2001</b>
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDT	0.0035	0.00083	mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017	mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/14/2001
Toxaphene	0.058	0.017	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	87.7	0-0	%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	85.8	0-0	%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limit
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Client Sample TP-7@0-8'

Lab Order:

0107372

Tag Number: 07A

Project:

Tall Pots Mitigation52-5146/0106164

Collection 6/19/2001 12:00:00 PM

Lab ID:

0107372-07A

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
aipha-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDE	0.051	0.00083	mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083	mg/Kg	. 1	7/14/2001
4,4'-DDD	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDT	0.0035	0.00083	mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017	mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/14/2001
Toxaphene	0.053	0.017	mg/Kg	1	7/14/2001
Surr: Decachiorobiphenyl	91.8	0-0	%REC	1	7/14/2001
Surr: Tetrachioro-m-xylene	86.0	0-0	%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limit R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

\* - Value exceeds Maximum Contaminant Level

CLIENT:

Transwest Geochem, Inc.

Lab Order:

0107372

Project:

Tall Pots Mitigation52-5146/0106164

Lab ID:

0107372-08A

Client Sample TP-8@0-10'

Tag Number: 08A

Collection 6/19/2001 12:25:00 PM

Matrix: EXTRACT

Analyses	Result	Limit	Qual Units	$\mathbf{DF}$	Date Analyzed
ORGANOCHLORINE PESTICIDES		SW8081A			Analyst: DCS
alpha-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
gamma-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
beta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/200 <b>1</b>
Heptachlor	< 0.00083	0.00083	mg/Kg	1	7/14/2001
delta-BHC	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Aldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Heptachlor epoxide	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan I	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDE	0.037	0.00083	mg/Kg	1	7/14/2001
Dieldrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endrin	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4'-DDD	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan II	< 0.00083	0.00083	mg/Kg	1	7/14/2001
4,4´-DDT	0.0036	0.00083	mg/Kg	1	7/14/2001
Endrin aldehyde	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Endosulfan sulfate	< 0.00083	0.00083	mg/Kg	1	7/14/2001
Methoxychlor	< 0.0017	0.0017	mg/Kg	1	7/14/2001
Chlordane	< 0.0083	0.0083	mg/Kg	1	7/14/2001
Toxaphene	0.055	0.017	mg/Kg	1	7/14/2001
Surr: Decachlorobiphenyl	92.8	0-0	%REC	1	7/14/2001
Surr: Tetrachloro-m-xylene	88.8	0-0	%REC	1	7/14/2001

Qualifiers:

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits J - Analyte detected below quantitation limit

R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

E - Value above quantitation range
\* - Value exceeds Maximum Contaminant Level